Volume 12
Number 14
4 April 2002

CDR WEEKLY

Published by: PHLS Communicable Disease Surveillance Centre

Main stories this week:

Outbreak of *Salmonella* Enteritidis in a nursing home: risk from eggs must not be forgotten

Meningococcal disease (including W135) in Burkina Faso

Communicable Disease and Public Health journal

Travel Health

Yellow fever and travel

Updated this week:

Respiratory tract infections, England and Wales: laboratory reports, weeks 10-13/02

Common imported infections, England and Wales: laboratory reports, weeks 10-13/02

Common animal associated infections, England and Wales: laboratory reports, weeks 10-13/02

If you have any comments or encounter any problems with this website, please contact nhough@phls.org.uk

News

Last updated: 4 April 2002
Next update due: 11 April 2002

Contents

Top |

Outbreak of *Salmonella* Enteritidis in a nursing home: risk from eggs must not be forgotten

An outbreak of diarrhoea and vomiting due to *Salmonella* Enteritidis phage type (PT) 4 has been reported from a 74-bedded care home in Wiltshire. The outbreak affected 12 residents, all on one floor of the home, and six staff. The onset of symptoms ranged from 7 to 13 March 2002. The affected residents were aged from 73 to 101 years. One 91 year old resident, a confirmed case, died on 12 March. Two others aged 93 and 85 years (both salmonella positive but no definite symptoms) died subsequently on 19 and 22 March respectively. Both had been in ill health for some considerable time before the outbreak.

Following an outbreak control meeting environmental samples were taken from the kitchen and about 50 raw shell eggs were sent for analysis to PHLS Wessex Environmental Microbiology Service. Catering staff and residents from the affected floor submitted faecal samples for culture. Questionnaires about symptoms, and food consumed in the three days prior to the onset of the outbreak, were distributed to residents and staff. These are currently being analysed.

Salisbury PHL isolated salmonella from 15 cases, four asymptomatic residents and one asymptomatic member of staff. The PHLS Laboratory of Enteric Pathogens identified these isolates and one isolate from an egg shell as a non-motile variant of *S.* Enteritidis PT4. They were indistinguishable on plasmid profile analysis. The eggs did not carry the Lion Quality mark, and several dozen eggs were used every week in cooking. Attempts are being made to identify the source of the eggs. The nursing home is now using liquid pasteurised egg.

The Chief Medical Officer's advice to the public on avoiding the consumption of raw eggs or uncooked foods made from them was reiterated in 1998 (1). The advice is aimed particularly at those who are most vulnerable to ill effects from the consumption of raw or partially cooked eggs, such as the elderly, babies and pregnant women. Lion Quality eggs are laid by hens vaccinated against *S.* enteritidis PT4. They have a best before date of 21 days after lay printed on the shells, as well as the egg pack, and there is complete traceability of the eggs through a 'passport' system.

1. Deputy Chief Medical Officer. *Expert advice repeated on salmonella and raw eggs. (Press Release 98/138).* London: Department of Health, 8 April 1998. Available at <http://tap.ccta.gov.uk/doh/intpress.nsf/page/98-138?OpenDocument>

Top |

Meningococcal disease (including W135) in Burkina Faso

Health officials in Burkina Faso have reported 6145 cases of meningococcal disease, including 813

deaths, since the beginning of January 2002 (1). *Neisseria meningitidis* serogroup W135 has been laboratory confirmed in cases from five districts by the World Health Organization (WHO) Collaborating Centre for Reference and Research on Meningococci, Oslo, Norway (2). It is thought that the strain may have been brought into the country by pilgrims returning from Hajj in Mecca. Epidemiological data linking the current outbreak in Burkina Faso to Hajj is, however, not yet available, and it is possible that W135 has been circulating for some time in Bukina Faso and other parts of west Africa. Three initial isolates tested show that the phenotype of the disease-causing W135 strain is the same as from strains isolated during the Hajj-related outbreak of W135 meningococcal disease in the United Kingdom (UK) in 2000 and 2001 (W135:2a:P1.5,2) (*D Caugant, WHO Collaborating Centre for Reference and Research on Meningococci, Oslo, Norway: personal communication*).

The Saudi Arabian Ministry of Health aims to prevent Hajj-related transfer of meningococcal disease from and to the African meningitis belt by requiring all pilgrims to have been vaccinated against meningococcal disease, not more than three years and not less than ten days before arrival. Quadrivalent vaccine (protecting against serogroup A, C, W135, and Y) is specified (3). This vaccine is currently unavailable in Burkina Faso, and pilgrims to the 2002 Hajj were vaccinated with the bivalent A and C vaccine. In addition to vaccination, pilgrims arriving from the African meningitis belt were offered chemoprophylaxis in Saudi Arabia to reduce nasopharyngeal carriage of *N. meningitidis*.

In 2001, over 13,000 cases of meningococcal disease were reported from Burkina Faso including almost 2000 deaths. Thirty-seven per cent of collected N. meningitidis strains in April 2001 were shown to be serogroup W135 by PCR. No relationship with the 2001 Hajj (travel or contact history) was identified for any of the cases (3). This suggests that serogroup W135 may be circulating irrespective of travel on Hajj.

Sporadic cases of W135 have been seen in other countries in the African meningitis belt since the 1980s (4). W135 was isolated between 1981 and 1983 from an epidemic in west Africa including the Gambia, Senegal, and Niger. An outbreak of meningitis serogroup A in Mali in 1994 revealed that the W135 serogroup was in circulation in a small number of cases.

Outbreaks of Hajj-related W135 meningococcal disease occurred in both 2000 and 2001 in the UK (5). Vaccination with the quadrivalent vaccine has been made a visa requirement for the 2002 Hajj. One case of W135:2a:P1.5,2 meningococcal disease linked to the 2002 Hajj has been identified in an infant with a household contact who travelled on Hajj.

During this outbreak, those immunising travellers from the UK to Burkina Faso should consider using the quadrivalent vaccine, especially for those travellers going on longer visits, or living or working with the local population.

1. World Health Organization. *Meningococcal disease in Burkina Faso – Update 3, 04 April 2002*. Geneva: WHO, 2002. Available from <http://www.who.int/disease-outbreak-news/n2002/april/4april2002.html>

2. World Health Organization. *Meningococcal disease in Burkina Faso – Update, 21 March 2002*. Geneva: WHO, 2002.. Available from <http://www.who.int/disease-outbreak-news/n2002/march/21amarch2002.html>

3. *Statement from Royal Embassy of Saudi Arabia, London*. 17 October 2002

4. World Health Organization. Meningococcal disease serogroup W135 (update). *Wkly Epidemiol Rec* 2001, **28** (76): 213-6

5. Kwara A, Adegbola RA, Corrah PT, Weber M, Achtman M, Morelli G, *et al*. Meningitis caused by a serogroup W135 clone of the ET-37 complex of Neisseria meningitis in West Africa. *Tropical Medicine and International Health* 1998; **3** (9): 742-6

6. Hahné S, Gray SJ, Aguilera J-F, Crowcroft NS, Nichols T, Kaczmarski EB, *et al*. W135 meningococcal disease in England and Wales associated with Hajj 2000 and 2001. *Lancet* 2002; **359:** 582-3.

Related articles:

Immunisation against meningococcal meningitis for Hajj and Umrah

Published 17 January 2002, Vol 12 No 3

Quadrivalent meningococcal immunisation required for pilgrims to Saudi Arabia

Published 8 November 2001, Vol 11 No 45
Meningococcal disease associated with Hajj – update
Published 11 May 2001, Vol 11 No 19
Meningococcal disease associated with Hajj 2001 – update
Published 5 April 2001, Vol 11 No 14
Meningococcal infection in pilgrims returning from Hajj
Published 22 March 2001, Vol 11 No 12
Meningococcal infection and the Hajj
Published 11 January 2001, Vol 11 No 2

Top |

Communicable Disease and Public Health journal

Communicable Disease and Public Health (CDPH), Volume 5, Number 1 has just been published. Among others, it includes articles on the impact of infections on primary care, guidelines on themanagement of, and exposure to, rash illness in pregnancy, and local surveillance of influenza. For the full contents listing and summaries of articles published visit <http://www.phls.org.uk/publications/CDPHVol5/No%201/CDPHv5n1.htm>. For a subscription form visit <http://www.phls.org.uk/publications/cdrsubs.htm>.

Back to top

Respiratory

Last updated: 4 April 2002
Next update due: 2 May 2002

Contents

Top |

Respiratory tract infections, England and Wales: laboratory reports, weeks 10-13/02

	Number of reports received				Total reports
	10/02	11/02	12/02	13/02	110-13/02
Adenovirus (excluding EM faeces)	54	10	32	6	**102**
Coronavirus	–	–	–	–	**–**
Influenza A*	153	33	85	20	**291**
Influenza B*	6	–	9	–	**15**
Parainfluenza	12	4	4	1	**21**
RS virus	464	125	598	19	**1206**
Rhinovirus	9	–	–	1	**10**
Chlamydia sp	2	4	2	1	**9**
Coxiella burnetti	–	–	–	–	**–**
Legionella sp	6	–	2	3	**11**
Mycoplasma pneumoniae	54	15	44	4	**117**

*Reports include cases diagnosed by culture, immunofluorescence and serology (including single high titre).

Adenovirus (excluding types 40, 41, group F, EM faeces): 102 cases were reported. Two patients had pneumonia. F 2y who had viral pneumonia died. Fifty-six patients had eye infections.

Coronavirus: no cases were reported

Influenza A: 291 cases were reported. Four patients had pneumonia, and one patient had bronchiolitis. M 20y and F 76y had a recent history of foreign travel; M 58y kept birds; F 87y and F 96y were part of an outbreak. North West region reported 90 cases, Eastern 48, West Midlands 45, Northern and Yorkshire 41, Trent 28, South West 19, Wales 13, and South East 7. Thirty-seven per cent of cases were aged less than 15 years.

Influenza B: 15 cases were reported. One patient had pneumonia. North West region reported 11 cases, Eastern, Northern and Yorkshire, South West and Wales one each. Six cases were aged less than 15 years.

Parainfluenza (type 1, 6; type 2, 5; type 3, 4; untyped, 6). Twenty-one cases were reported. Trent region reported eight cases, West Midlands six, Northern and Yorkshire four cases, North West two, and Eastern one. Six cases were aged 1 year or less.

Respiratory syncytial virus: 1206 cases were reported. Seventy-three patients had bronchiolitis. M 41y,

M 63y, and F 36y had a recent history foreign travel. M 48y had neutropenia. North West region reported 386 cases, London 165, West Midlands 155, Trent 144, South East 94, Northern and Yorkshire region 73, Eastern 67, South West 63, and Wales 59 cases. Eighty-two per cent of cases were aged 1 year or less.

Rhinovirus: Ten cases were reported. Trent region reported 5 cases, West Midlands 2, North West, Eastern, and South West reported 1 case each. Six cases were aged less than 5 years.

Respiratory chlamydia (*C. psittaci*, 4; *C. pneumoniae*, 4; *Chlamydia* sp, 1). Nine cases were reported. Two patients had pneumonia.

Coxiella burnetii: No cases were reported.

Legionella: 11 cases were reported with pneumonia. Nine were males aged 47 to 79 years and two were female aged 69 and 80 years. Three males aged 51, 75 and 79 years and one female aged 69 years died. Five cases were associated with travel: Spain (2), Cyprus (1), Turkey (1), Greece (1). The two cases who travelled to Spain were associated with a cluster. Six cases (four males aged 47, 69, 75 and 79 years and females aged 69 and 80 years), had community acquired infection.

Mycoplasma pneumoniae: 117 cases were reported. Eight patients had pneumonia. M 35y had pericarditis; M 35y had recent foreign travel; F 26y had erythema nodosum. North West region reported 30 cases, Northern and Yorkshire 17 cases, South West 16, West Midlands 15, Eastern 13, South East and Trent 9 each, London and Wales 4 each. Thirty-five per cent of cases were aged 14 years or under.

Back to top

Zoonoses

Last updated: 4 April 2002
Next update due: 2 May 2002

Contents

Common animal associated infections, England and Wales: laboratory reports, weeks 10-13/2002

	Total reports for weeks 10-13/02		Cumulative totals for weeks 01-13	
Organism	**2002***	**2001**	**2002***	**2001**
*Borrelia bugdorferi*** #	3	5	3	23
*Leptospira hardjo*** ##+	–	–	–	–
*Leptospira icterohaemorrhagiae*** ##+	–	1	1	4
Leptospira other*** ##+	2	1	3	2
Pasteurella haemolytica	1	–	1	1
Pasteurella multocida	26	23	41	67
Pastaurella pneumotropica	–	1	–	2
Pasteurella spp	5	5	9	11
Toxocara canis	–	–	–	–
Toxocara cati	–	–	–	–
Toxocara spp	–	–	–	1
Toxoplasma gondii	3	–	9	5
Toxoplasma spp	4	5	9	19

* provisional data; ** by specimen date; # Lyme Disease Reference Laboratory and CDSC; ## Leptospira Reference Laboratory and CDSC; +Corrected data. Provisional data was previously published.

Common imported infections, England and Wales: laboratory reports, weeks 10-13/02

	Total reports for weeks 10-13/02		Cumulative totals for weeks 01-13	
Organism	**2002***	**2001**	**2002***	**2001**
Arbovirus	–	–	–	–
Dengue virus	1	–	1	–
Ascaris spp	19	2	24	31
Hookworm (unspecified)	51	–	52	8
Ancylostoma duodenale	–	–	–	–
Necator americanus	–	–	–	–
Leptospira spp	–	–	–	1
Hymenolepis diminuta	–	–	–	–
Hymenolepis nana	5	–	7	5
Hymenolepis spp	–	–	–	–
Schistosoma haematobium	8	1	14	13
Schistosoma intercalatum	–	–	–	–
Schistosoma mansoni	7	2	8	8
Schistosoma spp	6	–	14	5
Strongyloides stercoralis	4	–	6	12
Strongyloides spp	–	–	–	–

* provisional data

Back to top

Travel health

Last updated:4 April 2002
Next update due: 2 May 2002

Yellow fever and travel

Introduction

Yellow fever is an arthropod-borne viral haemorrhagic fever transmitted by several species of mosquito. The enzootic/endemic zones for the disease are in tropical parts of Africa and South America. Although it causes outbreaks within the endemic zones, it is a very rare cause of illness in travellers. There is an effective vaccine available against yellow fever and an international certificate of vaccination is an entry requirement for some countries within the zones. For other countries, immunisation is only required for entry from infected areas. Immunisation is, however, recommended for most travel within the zones whether or not the certificate is a mandatory requirement. Despite this, there have been five recorded deaths from yellow fever in non-vaccinated travellers since 1996:

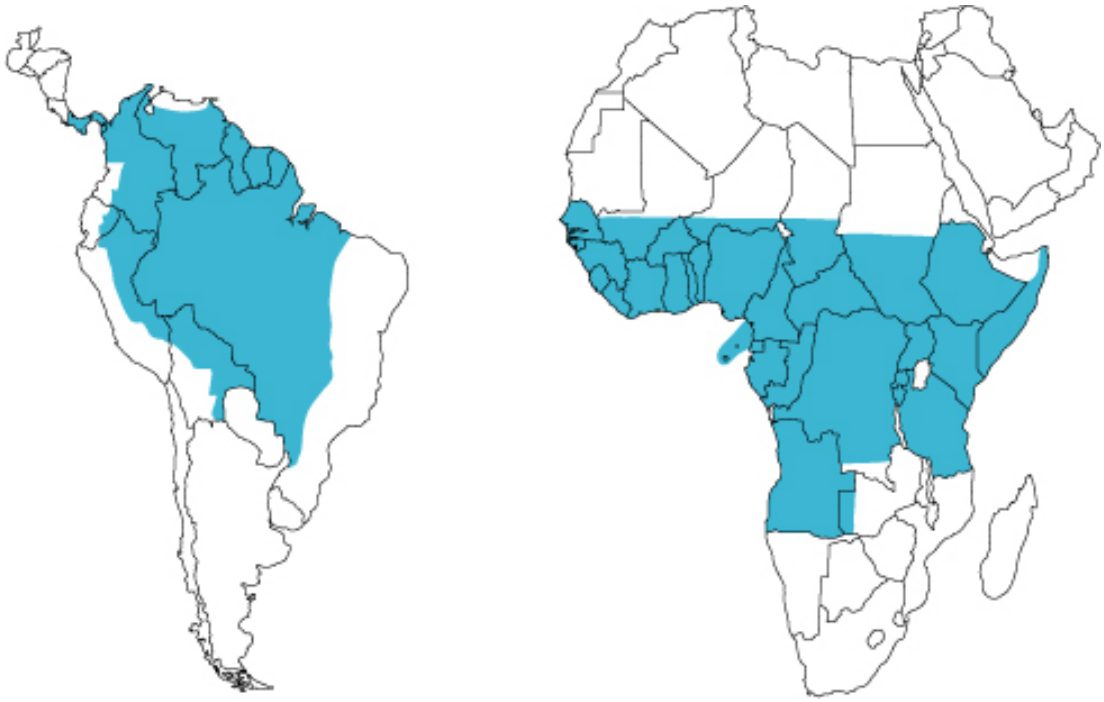
- 2001 – Belgian tourist aged 47 years, visited nature reserves close to the Gambia/ Senegal border, and was diagnosed with yellow fever shortly afterwards in a Belgian hospital (1).
- 1999 – US tourist aged 48 years travelled to Amazonas state in southern Venezuela with five companions, admitted to hospital with suspected haemorrhagic fever, later confirmed as yellow fever (2).
- 1999 – German tourist, aged 39 years who travelled to Côte d'Ivoire, was admitted to hospital with a suspected haemorrhagic fever after returning – later diagnosed as yellow fever (3).
- 1996 – United States (US) tourist aged 42 years, contracted yellow fever on a trip along the Rio Negro and Amazon rivers in Brazil (4).
- 1996 – Swiss tourist who was probably infected during a boat trip near Manaus, in the Amazon basin, Brazil (5).

These avoidable deaths highlight the importance of vaccination for yellow fever risk areas.

Epidemiology

The endemic zones for yellow fever are shown on the map (figure). Thirty-four countries in Africa and ten in South America are considered endemic for yellow fever. There are areas outside the endemic zones where the vector and non-human hosts are prevalent. If the virus were to be introduced into these areas, it could spread to humans. These are known as yellow fever receptive areas.

Figure Yellow fever endemic zones



Yellow fever has been recognised for at least 400 years. It was probably brought to the Americas through the slave trade and outbreaks occurred in the southern US in the 18th and 19th centuries. One major epidemic occurred in Philadelphia in 1793, when 5000 people died (6). In the 1900s, when it was established that the *Aedes* mosquito was the disease vector, strict control measures were applied and the last outbreak in the United States was recorded in 1905. Ship-borne outbreaks occurred in parts of Europe (particularly in the south during the summer months), but the *Aedes* mosquito that transmitted the infection in Europe disappeared after the Second World War. Yellow fever has never been reported in Asia, although the *Aedes* mosquito is present (7).

Yellow fever cases should be reported to the World Health Organization (WHO) under the *International Health Regulations* (8). In 1999, WHO reported 208 cases of yellow fever and 101 deaths. All but one case originated from the Americas. The estimated global figure is 200,000 cases of yellow fever every year, with 30,000 deaths. The true figure is difficult to determine as cases of yellow fever are underreported, especially in Africa. An outbreak in Côte d'Ivoire in September 2001 resulted in about 200 cases including seven deaths in Abidjan. A massive vaccination campaign was carried out. (9)

Clinical features
Yellow fever is of varying severity. The mildest cases may be clinically non-specific, but typically, the disease is characterised by a sudden onset of fever, chills, headache, backache, muscle pain, nausea, and vomiting. Jaundice, haemorrhage, and renal failure may follow a brief remission in between 10 and 20% of cases; of the latter, up to 60% of cases can be fatal.

Infectious agent
Yellow fever is caused by a single-stranded RNA virus: family Flaviviridae, genus flavivirus. This family of viruses also contains the dengue fever virus and the virus that causes Japanese encephalitis.

Transmission
Transmission of yellow fever in urban and some rural areas is primarily by infective *Aedes aegypti* mosquitoes, which can pass the virus from reservoir (monkey or human) to recipient (horizontal transmission). In South America, the forest vector is the Haemogogus mosquito. The mosquito can also be considered as a reservoir, as it can pass the virus to its offspring via infected eggs (vertical transmission). There are three transmission cycles of yellow fever: sylvatic (forest/jungle), intermediate, and urban.

Sylvatic yellow fever occurs where monkeys already infected by wild mosquitoes, pass the virus onto other feeding mosquitoes. These, in turn, bite and infect humans that enter the forest. Sporadic cases can occur in this way, usually in forest workers. **Intermediate** yellow fever occurs when the virus spreads beyond these sporadic cases and small outbreaks occur in rural villages. This is the most common transmission cycle seen in recent years in the moist savannah zones of west and central Africa, but has not been seen in South America. **Urban** yellow fever is transmitted mainly by the domestic mosquito *Aedes aegypti*, from one infected human to several others. It can cause major epidemics. Migrants from rural areas may introduce the virus into areas with high human population density after which the disease may spread rapidly.

Incubation period
Three to six days

Treatment
There is no specific treatment for yellow fever.

Prevention
The main method of prevention of yellow fever in travellers to endemic zones is by immunisation. A highly effective yellow fever vaccine, (17D) has been available for over 50 years. This is a live, attenuated, vaccine and a single dose confers immunity for at least ten years. It has enjoyed a reputation for having few side effects, although there have been recent reports of serious adverse events (including death) in Australia, Brazil, and the United States, most have occurred in the elderly (10). These rare adverse events are being monitored and investigated. Where there is a significant risk from the disease, it is likely to exceed the risk from the 17D vaccine, but the risk of yellow fever to the individual traveller is often difficult to assess. Until further information on both the yellow fever risks and vaccine risks are forthcoming, most advice is that travellers to endemic areas should be vaccinated unless there are specific contraindications (11).

Physical methods of protection for travellers are the reduction of mosquito bites by use of cover-up clothing, and repellents on exposed skin.

International Health Regulations

The *International Health Regulations* were adopted in 1969, and amended in 1973 and 1981, to provide a framework in order to prevent the international spread of infectious diseases through seaports and airports with the minimum interference with world traffic and trade (8). The two main aspects of these regulations likely to affect by travellers are:

1. yellow fever vaccination requirements imposed by certain countries;
2. the disinfection of aircraft to prevent importation of insect vectors.

The rationale for the mandatory yellow fever vaccination requirement for entry to countries within the zones, even where there is no yellow fever reported, is stated as:

"There are areas within these countries where the mosquito vector and non-human primate hosts are known to be present. The importation of the yellow fever virus from an infected individual, could lead to the establishment of infection in mosquitoes and primates, consequently putting the local population at risk from an outbreak."

An international certificate of vaccination will be required before entry showing that the vaccine is approved by WHO and it was given at an approved yellow fever vaccine centre. Where a contraindication to vaccination exists, a medical certificate to that effect must be carried in place of the yellow fever vaccination certificate. Approved centres are usually designated by the individual country's health ministry. A list of designated centres for the United Kingdom can be found on the Department of Health website at http://tap.ccta.gov.uk/doh/yellcode.nsf/pages/Home?open

References

1. Colebunders R. Imported case of confirmed yellow fever detected in Belgium. *Eurosurveillance Weekly* [serial online] 2001 [cited 4 April 2002]; **5** (47) Available from http://www.eurosurv.org/2001/pfp/011122_pfp.htm

2. Centres for Disease Control. Fatal yellow fever in a traveller returning from Venezuela, 1999. *MMWR* Morbidity and Mortality Weekly Report 2000; 49: 303-5

3. Teichmann D, Grobusch MP, Wesselmann H, Temmesfeld-Wollbrück B, Breuer T, Dietel M et al. A haemorrhagic fever from the Côte d'Ivoire. *Lancet* 1999; **354:** 1608-9

4. McFarland JM, Baddour LM, Nelson JE, Elkins SK, Craven RB, Cropp BC et al. Imported yellow fever in a United States citizen. *Clin Infect Dis* 1997; **25:** 1143-7

5. Barros MLB, Boecken G. Jungle yellow fever in the central Amazon. *Lancet* 1996; **348:** 969-70

6. Foster KR, Jenkins MF, Toogood AC. The Philadelphia yellow fever epidemic of 1793. *Scientific American*; **279** (2) August 1998: 68-73

7. Reiter, P. Climate change and mosquito-borne disease. *Environ Health Perspect* 2001; **109** (Supp 1): 141-61

8. *International Health Regulations (1969): third annotated edition.* Geneva, World Health Organization, 1983

9. World Health Organization. *Yellow fever in Côte d'Ivoire – Update 7.* Geneva: WHO, 10 October 2001. Available from <http://www.who.int/disease-outbreak-news/n2001/october/10aoctober2001.html>

10. *International travel and health.* Geneva: World Health Organization, 2002.

11. Mortimer PP. Yellow fever vaccine. *BMJ* 2002; 324: 439

Back to top